Space Weather Forecast

Issued on Friday, 19 January 2024 at 01:14 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Daily chance of isolated Moderate-class flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was low over the last 24 hours. Occasional low to mid-ranking Common-class X-ray flares were observed, peaking at 18/0408UTC from a region just east of the middle of the facing side of the Sun.
There are currently eight sunspot regions on the disc They are all magnetically simple, small to moderately sized and most are either stable or weakly decaying. The exception is a region in the southeast which has shown a slight increase in spot number and size, but despite this the region did not produce any significant flaring.

While some minor Coronal Mass Ejections (CMEs) were visible on satellite imagery in the past 24 hours, none of these are thought to bear Earth-directed components.

Solar Wind / Geomagnetic Activity: Solar winds started at Background levels, but after 18/0300UTC a gradual increase occurred with the solar wind reaching slightly elevated levels in the evening, peaking at 490 km/s at 18/1820 UTC. The magnetic field associated with the solar wind was predominantly weak, briefly reaching moderate levels at times, with the north-south component varying between being co-aligned and anti-aligned with Earth's field (to lesser or greater geomagnetic effect respectively).

The slight enhancements in the solar wind's speed and magnetic field may be be due to a weak coronal hole connection, but despite this geomagnetic activity only increased to Unsettled levels late in the day after being Quiet previously.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low activity is expected to continue, with a chance of isolated Moderate class flares. No significant regions are expected to rotate onto the disc during the period.

Solar Wind / Geomagnetic Activity: No CMEs feature in the forecast. The current slightly elevated solar wind speeds are likely to persist through today, and perhaps tomorrow (20th. Then a new coronal hole enhancement is expected to arrive late tomorrow, persisting through day 3 (21st) and then possibly declining through day 4 (22nd). Overall geomagnetic activity is expected to be Quiet to Unsettled, with a chance of Active intervals today and tomorrow, and a slight chance of Minor Geomagnetic Storm tomorrow.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Met Office Space Weather Forecast

Energetic Particles / Solar Radiation: There is a flat daily slight chance of minor solar radiation storms occurring (S1) with no complex sunspots currently in favourably-connecting parts of the Sun, and no recent significant flares.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	25	25	25	25
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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